

# Chapter 13

## Water Resources, Cooperation and Power

### Asymmetries in the Water Management of the Lower Jordan Valley: The Situation Today and the Path that Has Led There

Christine Bismuth

**Abstract** This chapter aims at providing an overview of the uses and the state of the water resources in the Lower Jordan Basin. The years 2007/2008 serve as a base line to describe the specific situation, marked by a succession of drought years during the first decade of the twenty-first century. An overview of the major treaties and agreements between the riparians and implications on the water management situation is presented. The nature of the relations between the different parties is analysed.

**Keywords** Water resources • Lower Jordan Basin • Yarmuk • Dead Sea • Red Sea • RSDS Conveyance Project • Water uses • Water balance • Water conflict • Israel • Jordan • Palestinian Territories

## 13.1 Water Resources of the Lower Jordan Basin

The Red Sea–Dead Sea (RSDS) Conveyance Project is the latest attempt to widen the range of available solutions to overcome the water stress in the Lower Jordan Basin and to stabilise the level of the Dead Sea. One of the major arguments for the RSDS Conveyance Project from its supporters is that no other options for long-lasting solutions are available. This argument is contested by most of the environmental protection groups, who fear the associated risks of the project for the Arava valley, the Dead Sea and the Red Sea itself. Those groups push for more water conserving solutions.

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C. Bismuth (✉)

Interdisciplinary Research Group Society - Water - Technology,  
Berlin-Brandenburg Academy of Sciences and Humanities,  
Jägerstraße 22/23, 10117 Berlin, Germany

Helmholtz Centre Potsdam - GFZ German Research Centre for Geosciences,  
Telegrafenberg, 14473 Potsdam, Germany  
e-mail: [bismuth@gfz-potsdam.de](mailto:bismuth@gfz-potsdam.de)

In order to understand the present situation of the Lower Jordan Basin and the impact of the planned project, a comprehensive view on the development and use of the water resources in the region is compulsory. Not only decisions with regard to water management but also institutional and societal settings had influence on the status of the water resources, the choices taken and the remaining options.

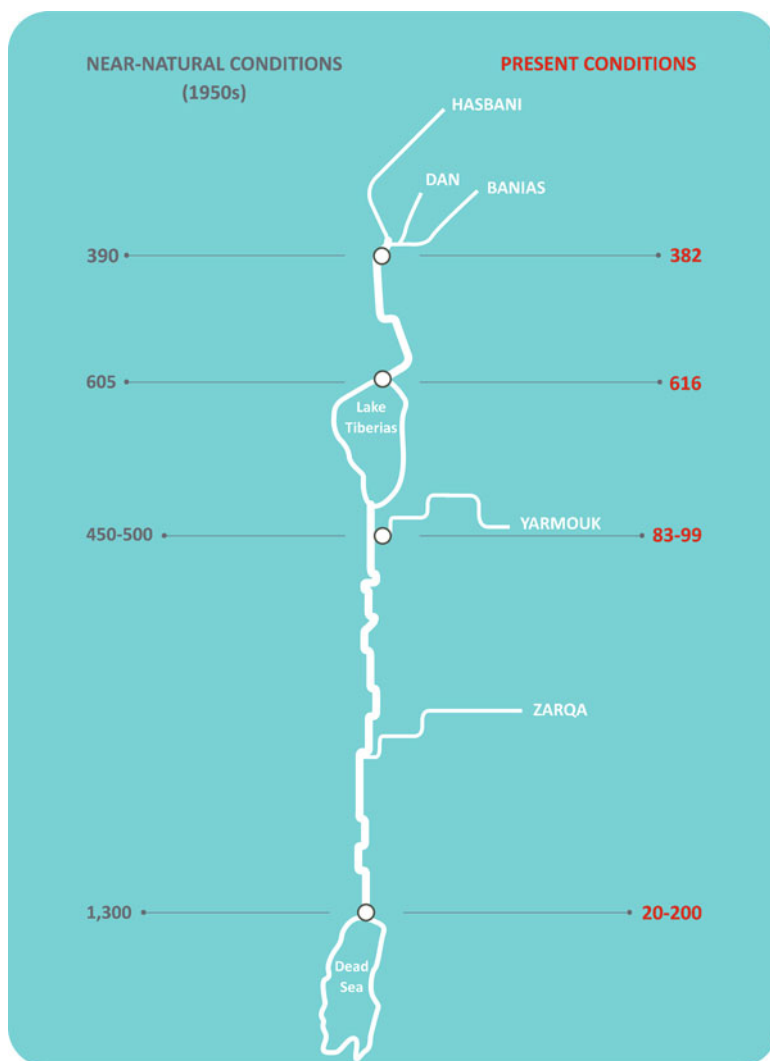
During the last 50 years, the Lower Jordan Basin was subject to important changes, resulting in distinct consequences for both the region's water resources and the Dead Sea as the final recipient of the Jordan River.

It is quite a challenge to provide a comprehensive overview of the region's water balances for the following reasons:

- Statistical data and methods vary between the different main riparians Israel, Palestine and Jordan, a common methodology is not applied.
- Due to the different conveyance systems (Israel's National Water Carrier, "Disi" conveyance system, desalinated seawater conveyance), it is not possible to restrict the observations to the Lower Jordan Basin. Instead, the water databases from Israel, Jordan and the West Bank have to be taken into account.
- Water data for the Kingdom of Jordan are partly based on projections as in the case of developed surface water sources. Climate change scenarios, which suggest a significant decrease in precipitation rates for the region, are not fully included in the projections.
- Even though groundwater abstraction and groundwater levels are regularly measured by the Israeli Water Authority (IWA) and its Hydrological Service, the latest groundwater data published in 2013 by the Israel Central Bureau of Statistics (ICBS) date from 2008. Since that period, water management in Israel has changed, and the most recent data on use and availability of water resources are in fact from 2013 (Israel Water Authority 2014). In its reports, the IWA does not distinguish between groundwater and surface water sources, but differentiates between various qualities of the consumed water (recycled, brackish, saline or potable).
- As the Israeli water distribution system stretches over the West Bank, groundwater resources are partially used jointly, whereas Palestinians have no direct access to Jordan. From an outside perspective, it is most difficult to identify Palestinian and Israeli water sources and abstractions.
- Another point of imprecise and controversial information is the quantity of water, which the Kingdom of Jordan receives from Syria via the Yarmuk River. The Jordanian–Syrian agreement on use of the water of the Yarmuk has fixed  $200 \times 10^6$  m<sup>3</sup>/year for Jordan. In fact, Jordan does not receive more than  $50 \times 10^6$  m<sup>3</sup>/year according to Prof. Salameh, member of the Jordan Royal Water Committee (Shami 2013).
- The figures which we present in Figs. 13.2 and 13.3 are in fact not values for the Lower Jordan Basin but values for Israel, the West Bank and Jordan. Because of the water transfers into the basin, the unknown exact locations of the abstractions, especially from the West Bank, we cannot draw a picture for the Lower Jordan Basin, but we look on the entity of the three countries. For simplistic reasons, we call that entity "Lower Jordan Basin". Another source of imprecise information is the division between the West Bank and Gaza strip. Under correct

circumstances, the figures for water uses of the Gaza strip should not have been included, and the water inflow from Israel into Gaza should have been taken into consideration. But as we cannot make a point with concern to exact and verified information concerning the West Bank and Gaza, we consider the resulting differences as negligible as they would not change the overall picture.

Keeping in mind those limitations, an overview of the water balance of the Dead Sea is presented in Fig. 13.1 and for the Lower Jordan Basin in Fig. 13.3.



**Fig. 13.1** Natural and present water balance of the Jordan River and the Dead Sea (Source: UN-ESCWA and BGR 2013. Source: Compiled by ESCWA-BGR based on Courcier et al. 2005; GRDC 2011, HSI 1944–2008)

While the inflow to Lake Tiberias did not show important variations since the 1950s, the outflow of the lake into Jordan was considerably reduced by the diversion of the lake's waters into Israel's National Water Carrier. The National Water Carrier transports the water from the northern part of Israel to the southern parts. The carrier provides both drinking water and water for irrigation to Israel. In order to enhance the quality of the water in the carrier, saline sources of the lake have been diverted away from the lake into Jordan, raising its salinity levels.

Water abstraction from Jordan itself and the Yarmuk, as one of its major tributaries, has increased significantly over the years, resulting in a minor inflow of  $20\text{--}200 \times 10^6 \text{ m}^3/\text{year}$  into the Dead Sea, compared to an inflow of about  $1,3 \times 10^9 \text{ m}^3/\text{year}$  60 years ago.

A further  $200\text{--}300 \times 10^6 \text{ m}^3/\text{year}$  is abstracted from the Dead Sea itself by the Jordanian and Israeli Dead Sea potash companies. According to the survey of TAHAL and Geological Survey of Israel (GSI) (2011, p. 5), a minimum inflow of  $700 \times 10^6 \text{ m}^3/\text{year}$  would be indispensable to stabilise the current sea level.

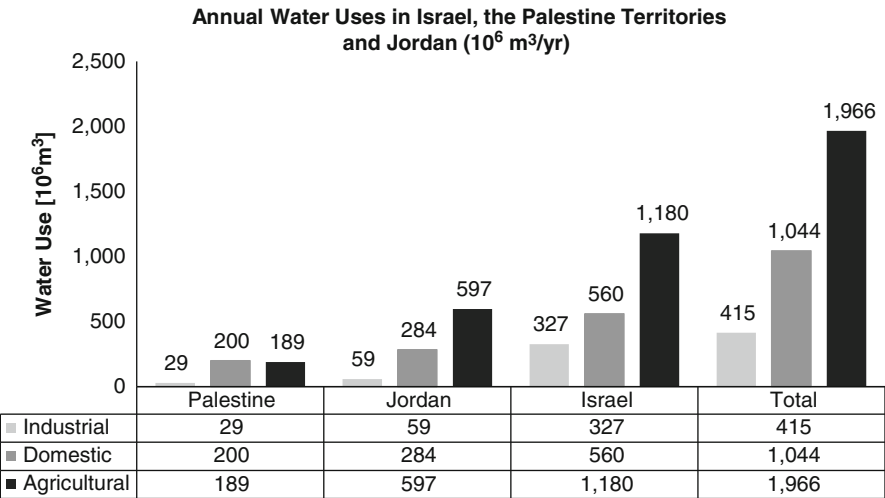
Addition of all abstractions leads to the known consequence for the Dead Sea: Its level is declining with a rate of about 1 m annually (Bismuth et al. 2015a, in this volume, pp. 89–98).

### 13.1.1 *Water Uses and Water Abstractions*

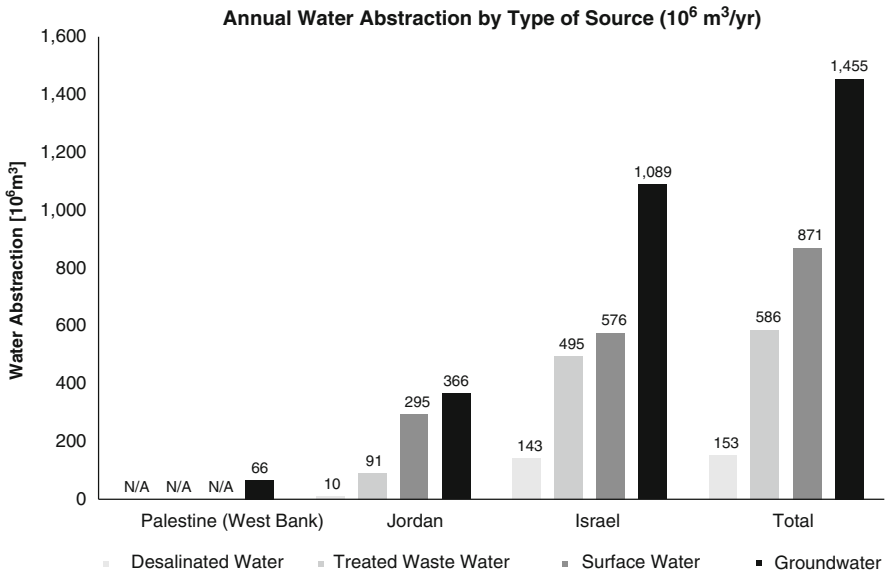
The different uses for Israel, the Palestine territories and Jordan are presented in Fig. 13.2. Agriculture is the most important water user in the region, even though its contribution to the gross domestic product (GDP) is rather low with 3.3 % for Jordan (World Bank 2013a, p. 23) and 1.4 % for Israel (2012 GDP at current prices, Israel Central Bureau of Statistics (2013). In 2008, the GDP for agriculture in the Palestinian Territories was 4.8 % (Palestine Economic Policy Research Institute 2010).

Figure 13.3 shows the water abstraction for Israel, Jordan and the West Bank by type of source. The data do not present abstractions from non-approved wells in the West Bank and in Jordan. The Palestinian Water Authority does reveal information neither on the use of desalinated water nor on wastewater. According to the same sources, existing storm water harvesting structures (dams, cisterns and agricultural ponds in the West Bank) have a bulk potential of around  $5.45 \times 10^6 \text{ m}^3$  (Palestinian Water Authority 2012). But as neither the year nor the actual volumes of abstractions are pointed out, and the amount is quite negligible, we did not consider this value.

We have selected the year 2007 in order to use a comparable data basis for Jordan and Israel. The years 2007 and 2008 mark the climax of a sequence of drought years and turning points in water policies, namely, the construction of major seawater desalination facilities at the Mediterranean shore and key administrative and legal reforms. Therefore, data from those years appear to provide a valid basis to evaluate progress and failures. Changes in the use and abstraction of water in Israel from 2007 until now will be discussed in Bismuth et al. (2015b, in this volume, pp. 253–275).



**Fig. 13.2** Water uses in Israel, the Palestine Territories and Jordan (Source: 2007 data for Israel are derived from Israel Central Bureau of Statistics (2012), data for Palestine are based on FAO Aquastat (2014) and data for Jordan are taken from Jordan Ministry for Water and Irrigation (2009))

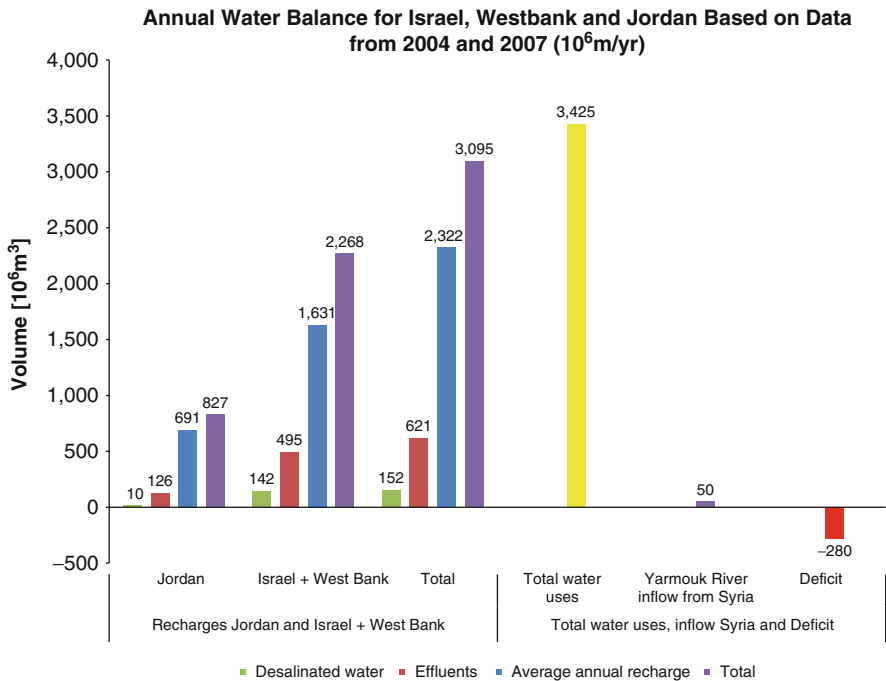


**Fig. 13.3** Water abstraction by type of source (Source: 2007 data for Israel are from the Israel Central Bureau of Statistics (2012, p. 19), 2007 data for Jordan are from Jordan Ministry for Water and Irrigation (2009, p. 1–6) and 2011 data for the West Bank are from the Palestinian Water Authority (2012, p. 26))

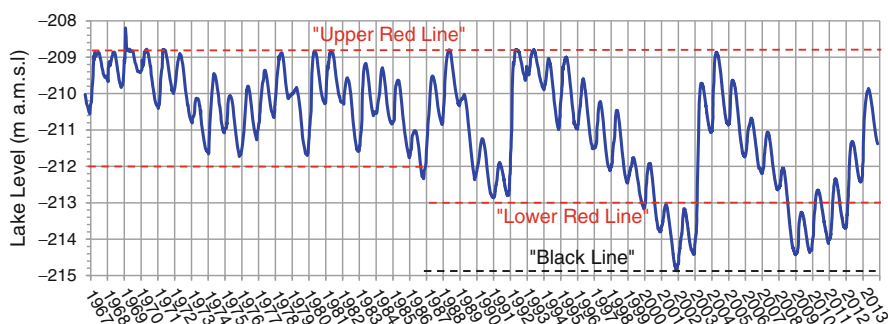
In 2007, groundwater has been the most important source of water uses in the Lower Jordan Basin. The total water abstraction for 2007 summed up to about  $3131 \times 10^6 \text{ m}^3$ . Israel released around  $234 \times 10^6 \text{ m}^3$  after use to the subsurface of which  $88 \times 10^6 \text{ m}^3$  is lost due to leakages. Jordan released around  $55 \times 10^6 \text{ m}^3$  to the subsurface with the share of losses probably being much higher as the unaccounted water in the municipals, which is around 50 % (Jordan Ministry for Water and Irrigation 2009) and 30 % for the Palestine territories (Palestinian Water Authority 2012).

13.1.2 Water Balance

The overall water balance for the region is presented in Fig. 13.4. We calculated a deficit of around  $280 \times 10^6 \text{ m}^3$  in 2007 for the whole region.



**Fig. 13.4** Water balance for Israel, the West Bank and Jordan based on 2004 and 2007 data. Source: According to Weinberger et al. (2012, Table 4), the total average annual recharge for Israel and the West Bank  $1631 \times 10^6 \text{ m}^3$  was calculated on a period from 1993 to 2009. 2007 data for desalinated water and for effluents were derived from Israel Central Bureau of Statistics (2012, Table 7 and p. 20). For Jordan, we calculated the average annual recharge, the effluents and the amount of desalinated water on a very conservative basis, based on the data from the Jordan National Master Plan from 2004 (Jordan Ministry for Water and Irrigation and German Technical Cooperation 2004, p. 48, Table 3.1 and p. 54) and from Water for Life (Jordan Ministry for Water and Irrigation 2009, executive summary, p. 7)



**Fig. 13.5** Lake Tiberias lake levels (Source: Markel et al. 2014)

To compensate for a part of the deficit, Jordan used  $91 \times 10^6 \text{ m}^3$  from nonrenewable groundwater sources in 2007. The most prominent aquifer is the “Disi” aquifer, a transboundary fossil groundwater resource shared with Saudi Arabia.

### 13.1.3 *Environmental Consequences of Current Water Uses*

Salt water intrusion to the coastal aquifers, significant decreases in the groundwater levels and resulting rising salinity levels were some of the hidden consequences of the unsustainable water uses. The crossing of the “Lower Red Line” in Lake Tiberias (Markel et al. 2014) marks the threshold where negative ecological consequences occur and where obvious and negative consequences for the National Water Carrier are most probable (see Fig. 13.5). The “Red Line” is a precautionary line defined by the Israeli Water Authority. A continuously lowered water level will lead to rapid salinisation due to penetration of saline water from underground sources into the aquifer (Haran et al. 2008).

For the Lower Jordan River itself, only 5 % of its natural flow is left. By diverting the saline springs of Lake Tiberias, the salinity in the river raised. The remaining water originates from agricultural runoffs, poorly treated effluents and drainage waters (Bamya et al. 2012).

### 13.1.4 *Climate and Demography*

Precipitation rates in the region show a high seasonal and annual variability. Comparisons between the average recharge from rainfall estimates for the period 1973 to 1992 with those for the period from 1993 to 2009 show a decline of 11 % for Israel and the Palestinian Territories. For the Lake Tiberias basin as the most important basin to provide the region with freshwater, the decline is particularly

high with more than 13 % (Weinberger et al. 2012). Regional climate change impact will most probably lead to decreasing precipitation rates and increase drought events (IPCC 2013).

Expected population growth will aggravate the water scarcity problems. For all concerned stakeholders such as the water authorities and “the Friends of the Earth Middle East”, it is evident that traditional water management offers no solution and that demand and supply management has to be altered.

### ***13.1.5 Proposed Strategies***

Increasing environmental concerns about the state of the water resources and the environment are calling for the rehabilitation of the Lower Jordan flows. The partial restoration of the Lower Jordan River is an economically viable option as additional income for the riparian populations could be generated from the benefits (Becker et al. 2014).

Israel reacted to the water crisis with an enforced building of seawater desalination facilities and wastewater treatment plants for the reuse of water and with extensive structural and price reforms. The challenges and benefits of those reforms are discussed in Bismuth et al. (2015b, in this volume, pp. 253–275).

Jordan equally started to implement measures like building the “Disi” Aquifer Conveyance Project, aiming to use the fossil waters of this groundwater resource. The recently inaugurated “Disi” pipeline will provide Jordan with an additional annual supply in the order of  $100 \times 10^6 \text{ m}^3$  for the next 20–30 years depending on abstraction rates. Consequences of existing use practices and specific challenges for Jordan are addressed in Chap. 15 (Yorke 2015, in this volume, pp. 227–251).

Setting up a seawater desalination plant at Aqaba combined with a conveyance of the remaining brine to the Dead Sea is part of the planned RSDS Conveyance Project. This project and its alternatives will be presented in Malkawi and Tsur (2015, in this volume, pp. 205–225).

## **13.2 History of Water Conflicts, Cooperation and Treaties**

The existing water accords play an important role for the definition of rules for the management of the common water resources. They also have an influence on the abstraction rates and the exchange of water between the riparians. A trilateral project like the RSDS Conveyance Project further demands some level of cooperation. Therefore, we will shortly present the main and relevant agreements in the context of the Lower Jordan Basin, and we will analyse them in regard to the RSDS Project.



### ***13.2.1 The Johnston Plan***

In 1953, the United States sent a special envoy, Eric Johnston, to the region in order to mediate an agreement on the Jordan River allocations, later called the Johnston Plan. Though the parties never formally ratified the plan, they have initially adhered to it. According to the plan,  $400 \times 10^6$  m<sup>3</sup> per year were allocated to Israel,  $720 \times 10^6$  m<sup>3</sup> to Jordan and  $132 \times 10^6$  m<sup>3</sup> to Syria (Phillips et al. 2007). But in the 1960s, the parties began to develop projects in excess of the Johnston allocations. This could be considered as one of the reasons for the 1967 war, which gave Israel control over two of the three Jordan headwaters: the entire Lower Jordan River and the Mountain Aquifers in the West Bank (Wolf 2000). The latter are of strategic importance for Israel's provision with groundwater, as major springs in Israel are alimanted by those aquifers (Baumgarten 2010). Even though the Johnston Plan is frequently cited as a basis for cooperation agreements between the concerned parties, it falls short in view of sustainable groundwater uses, environmental needs and the impacts of population growth and climate change on the availability of water resources (Mager 2015).

### ***13.2.2 The Agreement Concerning the Utilisation of the Yarmuk Waters***

Jordan signed an agreement with Syria concerning the utilisation of the waters of the Yarmuk River (Syrian Arab Republic and Jordan 1987). The agreement foresaw the establishment of a joint Syria–Jordan Commission for the implementation of the dam-building works at Maqarin. The dam at the Yarmuk River was finally realised in 2011 with a storage capacity of  $110 \times 10^6$  m<sup>3</sup>. So far the dam's reservoir remained unfilled, as droughts and increased consumption in Syria have considerably reduced the annual flow of the Yarmuk River. Since the agreement was signed in 1987, more than 30 dams and more than 300 wells have been erected (UN-ESCWA and BGR 2013).

### ***13.2.3 The Peace Treaty Between Israel and Jordan***

Israel and Jordan signed a peace treaty in 1994 (Jordan-Israel Peace Treaty 1994). The peace treaty refers implicitly to the three main principles of international customary water law (rule of equitable and reasonable utilisation, the no-harm rule and the duty to cooperate), but adapts them to the special political situation. The water issues between the two states are settled in Article 6 and in Annex II of the treaty. The parties agree on the allocations of the shared water resources from Yarmuk and Jordan: In the summer season, Israel receives  $12 \times 10^6$  m<sup>3</sup> from the Yarmuk River,

and Jordan receives the remaining waters, while Israel is allowed to obtain  $13 \times 10^6 \text{ m}^3$  during the winter period. The parties agreed also on a storage system, which permits the storage of  $20 \times 10^6 \text{ m}^3$  allocation during the summer period. In Article 7 of Annex II, the establishment of a Joint Water Committee comprised of three members from each country is fixed. The cooperation of water issues and the exchange of relevant data on water resources are synchronised by the Joint Water Committee. The Joint Water Committee shall survey existing uses for documentation and prevention of appreciable harm. The treaty foresees also the joint establishment of monitoring stations and bans the disposal of wastewater in the rivers without treatment to standards allowing the unrestricted agricultural use.

In fact the Jordan–Israel Peace Treaty is the legal foundation for the development of the Red Sea–Dead Sea (RSDS) Conveyance Project. Israel and Jordan admitted the fact that the natural water resources are not sufficient to meet their needs. The parties agreed to cooperate in the development of new water resources among others, and Israel agreed to transfer desalinated water to Jordan.

The Jordan–Israel Peace Treaty of 1994 did not address any of the other riparian rights or any other aspect of the Jordan River basin except those of the Yarmuk and Jordan River. Any peace treaty between Israel and the Palestinians with concern to water management will therefore interfere with the agreements settled in the Jordan–Israel Peace Treaty (Mager 2015).

### ***13.2.4 The Oslo II Agreement***

The most important water issues of concern between Israel and Palestine are the use of the aquifers located in the West Bank, the Eastern, Western and North-Eastern Mountain Aquifers, and the sharing of their resources. The share and distribution of the water resources and the establishment of a Palestinian Water Administration Authority were settled in Annex III, Article 40 of the Oslo II Agreement (Israeli–Palestinian Interim Agreement (Oslo II) 28 September 1995, pp. 318 ff.). In essence the Oslo II Agreement gives the Palestinians the right to establish a Water Administration Authority and acknowledges for the first time in principle Palestinian water rights. The future water demands for the Palestinians have been mutually agreed to be around  $70\text{--}80 \times 10^6 \text{ m}^3$  per year. The exact allocation is postponed to the Permanent Status Negotiations and Agreement.

The two parties agreed to establish a Joint Water Committee (JWC) for the interim period until a peace treaty between the Palestinians and the Israelis will be settled. Even though the Joint Water Committee has far reaching administrative responsibilities concerning the management of the water resources in reality, the JWC led to the formalisation of discriminatory management practices (Baumgarten 2010, p. 189). All development projects are under the condition of prior approval by the JWC, but as all decisions of the JWC should be reached by consensus, Israel got a de facto veto right. Furthermore, projects outside the areas under administration of the Palestinian Authority (A and B) need the approval of the civil administration,

which represents a branch of the Israeli Defence Ministry. This required approval delays necessary projects as it is a long bureaucratic process (The Knesset 2011). As a consequence, the Palestinians are not able to develop their water resources or projects in the desired way.

But also the Palestinians denied approval to some of the proposed projects, as they would serve some of the interests of the Israeli settlements in the West Bank. The Palestinian side categorically turns down any cooperation with the Israeli settlements.<sup>1</sup>

In fact, the JWC in its present form and under the present political circumstances is not an effective instrument to derive solutions and settle conflicts for the most important water management problems of the West Bank, which are the old and insufficient potable water distribution network, the problem of not approved water abstractions, the lacking sewage collection and treatment and the pollution of the streams, wadis and groundwater sources. Fragmented institutions, limited governance due to the occupation and the split between the different Palestinian fractions resulted in the lack of environmental planning instruments, capacities, legislation and enforcement in Palestine. The political lock-in situation between Israel and Palestine concerning the peace process and the power asymmetries between the two parties has also led to an obstruction of the management of the shared water resources. Israel can be criticised for discriminatory water practices (Kislev 2008). According to Kislev, Palestinians receive only 60 % of the water share that Jewish settlements receive, and if water losses are taken into account, the figure might even be less.

### ***13.2.5 The Red Sea–Dead Sea Water Conveyance Study Programme***

Even though the Red Sea–Dead Sea Water Conveyance Study Programme under the World Bank represents neither a treaty nor an accord among the three riparians of the Lower Jordan, it represents a first common action within the institution of the World Bank between Israel, Jordan and the Palestine territories. We can draw some important lessons from the study programme both with concern to the relations between the riparians but also with concern to the planning process of the RSDS Conveyance Project as an example of a future MWEF.

As part of the Jordan–Israel Peace Treaty negotiations, the two parties conceived a concept to convey water from the Red Sea to the Dead Sea. As the scope of the project requires international funding, the concept had to be agreed by the Palestinian Authorities. This was done by the submission of a jointly signed letter to the World Bank dated 9 May 2005 requesting to coordinate donor financing and the manage-

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<sup>1</sup> Interview on 2 January 2014 with A. M. Hindi (Palestinian National Authority, Palestinian Water Authority, Director General National Water Council's Unit) and R. A. El Sheikh (Palestinian Water Authority, Deputy Chairman)

ment of the implementation of the study programme (World Bank 2013b). The three parties announced their agreement at the World Economic Forum at the Dead Sea in May 2005. To finance the estimated costs of the study programme of USD 16 million, the World Bank established a multi-donor trust for finance. It took 5 years to establish the trust in 2010. The donors were France, Greece, Italy, Japan, South Korea, the Netherlands, Sweden and the United States.

Initially, the study programme did not include the Study of Alternatives but only a feasibility study and the environment and social assessment study. It was due to the pressure of the environmental nongovernmental organisations that a study of alternatives was conducted as the last study within a series of different studies.

The terms of reference never considered investigating on the feasibility to generate energy from saline water, but the financial benefices were considered in the study of alternatives Malkawi and Tsur (2015, in this volume, pp. 205–225). This fact is crucial for the implementation of the polluters pay principle (Bismuth et al. 2015b, in this volume, pp. 253–275) and also for the overall costs of the project.

From the beginning of the study programme, the role of the Palestinian Authorities had been quite ambiguous: On the one side, they saw in the project an opportunity to achieve results for their creation of a Palestinian state, and, on the other side, the Palestinians in their majority opposed the project, which resulted in minor active participation in the Study of Alternatives. All three beneficiary parties proposed to the World Bank a list of experts to conduct the study, but on the Palestinian list, only non-Palestinians appeared. It is not that the Palestinians lack qualified expertise among their scientists, but finally a British citizen (Tony Allen) was chosen as the expert to represent the Palestinian's interests. The stakeholder discussions on 20 and 21 February 2013 reflect this ambiguous position of the Palestinians between their needs for more water, their rights on land and resources, their opposition to Israel and the acknowledgements of the Jordanian water needs ([www.worldbank.org/rds](http://www.worldbank.org/rds)). The majority of the participants in the stakeholder forum would have preferred to settle water questions in the peace negotiation process, and they feared that with an agreement they would lose their rights on water and land. Some of the participants demanded the rights of the Palestinians to develop their own Potassium companies at the Dead Sea and to construct their own hotel sector at the sea shore, but without outlining where the additional water should come from. The stakeholder discussions in Israel on 18 and 19 February 2013 reflected more on the environmental concerns but also on Israel's concern to support Jordan in its quest for new water sources, while the Jordanian meetings on 14 and 17 February 2013 were centred around the questions of affordable water prices and the economic consequences of the project but also on security and safety aspects.

Only few participants raised the questions on the possible management and controlling structures with regard to the complicated relational setting in the region. This aspect was not adequately addressed neither in the terms of references nor in the presented reports.

### 13.2.6 *The Water Swap Memorandum of Understanding*

The Memorandum of Understanding (MoU) (see Bismuth et al. 2015a, in this volume, pp. 89–98) between Israel, Jordan and the Palestinian Territories concerning the Red Sea–Dead Sea Water Conveyance Project is the latest and most concrete agreement between the three parties. The negotiation process already for the agreement to launch the feasibility study supported and conducted by the World Bank has turned out to be rather fastidious and time consuming as the Palestinians saw an opportunity to gain more influence on the shared water resources between Israel and the Palestinian Territories and to use the project as a bargaining chip in the peace treaty negotiation process as well as an instrument to realise national sovereignty (Fischhendler et al. 2013).

While the MoU constitutes an intelligent cost saving solution for Jordan and Israel, based on mutual cooperation, the MoU does not provide any substantial solution for the manifold water management problems between Israelis and Palestinians. The approach as foreseen in the MoU reduces the problems between the two parties merely to quantitative aspects.

Detailed regulations will be fixed in bilateral accords between the parties. This facilitates the realisation of the Israeli–Jordanian agreements, as the approval to build the most needed seawater desalination plant at Aqaba will no longer depend on the Palestinians. But under the present political circumstances between the Palestinians and the Israelis, it is more than unpredictable what this means for the realisation of the conveyance and any other actions undertaken to halt the further decline of the Dead Sea water level. Any common action for the safeguard of the Dead Sea appears to need a more comprehensive approach.

## 13.3 Conclusions

The data on water uses, on abstractions and on available sources indicate clearly that already in 2007 the three riparians have been in a deficiency situation with important impacts on groundwater resources, river and lake ecosystems and the Dead Sea itself. The discussions within the RSDS Conveyance Study Programme conducted by the World Bank revealed that a technical solution is only one of the several assets required to halt the further decline of the Dead Sea. The results of the RSDS Study Programme do not provide proposals for adequate management, control structures and the financial conditions for such a major project, but also cost calculations specifically for the part of the energy generation remain unsettled.

The existing bases for international cooperation are the different agreements between Israel and Jordan, Israel and the Palestinian Authorities and Jordan and Syria. All three accords (the Jordanian–Syrian agreements, the Jordan–Israel Peace Treaty and the Oslo II Agreement) have in common that they are ambiguous, vague and voluntary and leave room for interpretation for each party (Mager 2015). Rules

on compliance and control and mechanisms for mediation in case of a conflict between the parties are not established or not in operation, especially after the Al-Aqsa Intifada in September 2000 (Dombrowsky 2003). The accords might be sufficient for short-term planning and communication, but for a longer perspective and the establishment of a common coherent management strategy, they do not provide adequate structures. Furthermore, the agreements are inflexible with regard to the challenges of regional climate change impacts or to newly arising issues, as they consolidate existing uses.

The agreements recognise only states as legitimate actors, which leads to centralisation and nationalisation of the water management. Both in Palestine and in Israel, the discourse on water is focused on the development of resources seen as a part of the nation-building effort (Trottier and Brooks 2013).

The nature of the relations between Israelis and Palestinians defines the way how water management problems are addressed. The large power asymmetries between the two parties do not only impede the development of intelligent solutions, but they also prevent the Palestinians from developing their own objectives, based on necessities but also on the availability of natural water resources and the principles of sustainability.

Shared water resources mean shared responsibilities and duties. With more water from Israeli desalination plants, quantitative problems might be eased, but nothing is gained to overcome existing power asymmetries or insufficient conflict mitigation instruments. Any measure which builds trust and mutual understanding is most needed in that region. What is furthermore needed is a frank discussion about carrying capacities in the light of climate change and population growth and on the role of agriculture.

Shared water resources mean furthermore that data on the water resources have to be shared in a transparent and reliable way. That could be a first step towards trust building not only between the different countries but also in view of the citizens.

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